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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,769	11/26/2003	Robert A. Bellman	SP02-260	7200
22928	7590	03/03/2005	EXAMINER	
CORNING INCORPORATED			CHEN, KIN CHAN	
SP-TI-3-1			ART UNIT	PAPER NUMBER
CORNING, NY 14831			1765	

DATE MAILED: 03/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/722,769

Applicant(s)

BELLMAN ET AL.

Examiner

Kin-Chan Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) 7, 13, 25 and 32-65 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-12, 14-24 and 26-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 031504.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of species A on January 27, 2005 is acknowledged. The traversal is on the ground(s) that species B such as SiAlON of claim 7 falls within species D. Since neither species B or species D is elected. The argument is considered irrelevant to the current election. Applicants also argues that species C (e.g., claim 13) of "mixed oxide including at least three constituents doped with metalloid, transitional metals, alkali, alkaline earth, or rare earth components is not mutually exclusive with species A. It is not persuasive. Three constituents doped with metalloid, transitional metals, alkali, alkaline earth, or rare earth become different compound with different material properties and characteristics. Furthermore, they involve different searches that would be a serious burden on the examiner.

The requirement is still deemed proper and is therefore made FINAL.

In summary, examination will be limited to claims to the elected species (claims 1-6, 8-12, 14-24, and 26-31), with claims drawn to non-elected species held withdrawn from further consideration.

***Specification***

2. The disclosure is objected to because of the following informalities:

On page 1, the application claims benefit of 60/432,076, which can not claim the benefit of other applications, see MPEP 201.04B and 37CFR1.53.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claim 9, line 2 "selected from" is unclear as to the scope of the claim (It is an improper Markush language). The examiner suggests replacing it with "selected from the group consisting of".

In Claim 11, line 2 "selected from either ...." is unclear as to the scope of the claim (It is an improper Markush language).

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yano et al. (US 6,740,590; hereinafter "Yano").

In a method for chemical mechanical polishing, Yano teaches a slurry may comprise non-agglomerated multi-component particles of a mixed oxide composition having an isoelectric point greater than the pH of dispersed particles in solution. A surface of the workpiece may be abraded with the multi-component particles. Since the same slurry used for the same CMP process, each particle exhibits a modified surface chemistry performance inherently. It is expected that the particle surface chemistry is modified (the isoelectric point of the multi-component particle is displaced toward an alkaline pH value) relative to the surface chemistry performance of the individual, original base constituents of the particle. See abstract; cols. 7 and 8.

Claims 4-6, 8-12, 14-24, and 26-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yano et al. (US 6,740,590; hereinafter "Yano").

In a method for chemical mechanical polishing, Yano teaches a slurry may comprise non-agglomerated multi-component particles of a mixed oxide composition having an isoelectric point greater than the pH of dispersed particles in solution. A surface of the workpiece may be abraded with the multi-component particles. Since the same slurry used for the same CMP process, each particle exhibits a modified surface chemistry performance inherently. It is expected that the particle surface chemistry is modified (the isoelectric point of the multi-component particle is displaced toward an alkaline pH value) relative to the surface chemistry performance of the individual, original base constituents of the particle. See abstract; cols. 7 and 8.

The limitations of claims 4-6, 8-12, 14, 21, and 31 have been addressed above and rejected for the same reasons, *supra*.

As to claims 16-20, Yano teaches the ranges of particles sizes, see col. 9, lines 6-9.

Dependent claims 15 and 26-30 differ from Yano by specifying pre-selected surface chemistry and hardness tailored to the workpiece surface; non-planarized surface, metallized interconnection structure, interlevel dielectric structure. However, they are merely a matter of choices of design depending on product requirement. Hence, it would have been obvious to one with ordinary skill in the art to use different choices of design in order to make various semiconductor devices as required and produce an expected result.

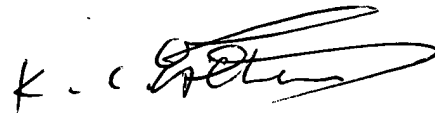
Dependent claims 22-24 differ from Yano by specifying conventional methods of forming particles or slurry in the art of semiconductor device fabrication. A person having ordinary skill in the art would have found it obvious to modify Yano by adding any of same conventional method to same in order to provide their art recognized advantages and produce an expected result.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kin-Chan Chen whose telephone number is (571) 272-1461. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published

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applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

February 28, 2005



Kin-Chan Chen  
Primary Examiner  
Art Unit 1765